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PATENT
Attorney Docket No. F0697

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Application of:)	
)	
Robert Williams et al.)	Group Art Unit: 2143
)	
Serial No.: 09/752,719)	Examiner: T. Mauro Jr.
)	
Filed: January 3, 2001)	
)	
For: METHOD AND APPARATUS FOR)	
PERFORMING PRIORITY-BASED)	
FLOW CONTROL)	
)	

APPEAL BRIEF

U.S. Patent and Trademark Office
Customer Window, Mail Stop Appeal Brief – Patents
Randolph Building
401 Dulany Street
Alexandria, Virginia 22314

Sir:

This Appeal Brief is submitted in response to the rejection mailed December 1, 2004
and in support of the Notice of Appeal filed December 20, 2004.

I. **REAL PARTY IN INTEREST**

The real party in interest in this appeal is Advanced Micro Devices, Inc.



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application of)

Robert Williams et al.)

Group Art Unit: 2143

Application No.: 09/752,719)

Examiner: T. Mauro Jr.

Filed: January 3, 2001)

For: METHOD AND APPARATUS FOR)
PERFORMING PRIORITY-BASED)
FLOW CONTROL)

TRANSMITTAL FOR APPEAL BRIEF

U.S. Patent and Trademark Office
Customer Service Window, Mail Stop Appeal Brief-Patents
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Sir:

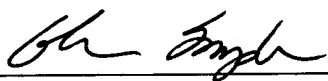
Transmitted herewith is an Appeal Brief in support of the Notice of Appeal filed
December 20, 2004.

Enclosed is a check for ☐ \$250.00 ☒ \$500.00 to cover the Government fee.

The Commissioner is hereby authorized to charge any other appropriate fees that may be
required by this paper that are not accounted for above, and to credit any overpayment, to
Deposit Account No. 50-1070.

Respectfully submitted,

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Date: February 18, 2005

II. RELATED APPEALS AND INTERFERENCES

Appellants are unaware of any related appeals, interferences or judicial proceedings.

III. STATUS OF CLAIMS

Claims 1-16 and 18-23 are pending in this application and have been rejected. Claim 17 has been previously canceled without prejudice or disclaimer. Claims 1-16 and 18-23 are the subject of the present appeal.

IV. STATUS OF AMENDMENTS

No Amendment has been filed subsequent to the Final Office Action mailed December 1, 2004.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

Each of the independent claims involved in this appeal is recited below, followed in parenthesis by examples of where support can be found in the specification and drawings for the claimed subject matter. In addition, each dependent claim argued separately below is also summarized below in a similar manner.

Claim 1 recites: A network device (Fig. 1, 180) configured to control communication of data frames between stations (Fig. 1, 110), comprising: a logic device configured to detect a condition associated with a resource on the network device (page 13, line 9 to page 14, line 9;

Fig. 2, 180); a frame generating device configured to generate a pause frame requesting suspension of data traffic in response to the detection of the condition, the pause frame including a priority indicator identifying a first priority (page 13, lines 1-8, page 14, lines 10-19, Fig. 4, 410); and a transmit device configured to transmit the pause frame to at least one station, the pause frame requesting the at least one station to suspend transmission of data frames corresponding to the first priority to the network device, wherein the pause frame does not affect transmission of data frames corresponding to a priority other than the first priority (page 12, lines 18-24, page 14, lines 19-22, page 15, line 21 to page 16, line 6).

Claim 11 recites: In a network device that controls communication of data frames between stations, a method comprising: detecting a condition on the network device (page 13, line 9 to page 14, line 9; Fig. 5, 520); generating a pause frame requesting suspension of data traffic of a first priority for a period of time, the pause frame not affecting data traffic of a priority other than the first priority in response to detecting the condition, the pause frame including a priority indicator identifying the first priority (page 12, lines 18-24, page 13, lines 1-8, page 15, line 21 to page 16, line, Fig. 4, 410, Fig. 5, 540); and transmitting the pause frame to at least one station (page 14, lines 18-21, Fig. 5, 550).

Claim 21 recites: A computer-readable medium having a data structure comprising: a source address field; a destination address field; a priority field including information representing a priority level associated with data frames for which data transmissions are to be

suspended; and a pause time field including information representing a length of time for at least one receiving station identified by the destination address field to suspend data transmissions relating to the priority level in the priority field (page 12, lines 7-9, page 12, line 18 to page 13, line 8, page 15, line 21 to page 16, line 6, Fig. 4, 400).

Claim 22 recites: A data communication system (Fig. 1, 100), comprising: a first device (Fig. 1, 180) configured to: receive data frames from at least one station (Fig. 1, 110), determine a priority associated with the received data frames (page 9, lines 20-22), detect a congestion condition when at least a predetermined number of data frames of a first priority are being processed by the first device (page 13, line 9 to page 14, line 9), generate a pause frame requesting suspension of data transmissions in response to the congestion condition, the pause frame including a priority indicator corresponding to the first priority, and transmit the pause frame to at least one station (page 13, lines 1-8, page 14, lines 10-21, Fig. 4, 410); and a second device configured to: receive the pause frame, suspend transmission of data frames relating to the first priority, and continue transmission of data frames relating to a second priority (page 15, lines 3-9, page 15, line 21 to page 16, line 6, Fig. 1, 110).

Claim 23 recites: In a network including a number of network stations and at least one network device configured to control communication of data frames between stations, a first network device (Fig. 1, 180), comprising: a receive device configured to receive data frames from at least one of the network stations and other network devices (Fig. 2, 205); and data

frame processing logic configured to: identify a received data frame as a pause frame, the pause frame including a priority indicator, map the priority indicator to a first priority, suspend transmission of data frames corresponding to the first priority, and continue transmission of data frames corresponding to priorities other than the first priority (page 15, lines 3-9, page 15, lines 3-9, page 15, line 21 to page 16, line 6, page 18, lines 8-12).

Claim 5 recites: The network device of claim 4, the logic device being further configured to detect the condition when frame forwarding information associated with a predetermined number of data frames having the first priority are stored in a first one of the plurality of queues (page 13, line 15 to page 14, line 9, Fig. 6, 240).

Claim 6 recites: The network device of claim 1, wherein the condition relates to a congestion condition associated with data frames having the first priority (page 13, line 15 to page 14, line 17).

Claim 7 recites: The network device of claim 1, wherein the condition relates to a congestion condition, the congestion condition occurring when a predetermined number of data frames having the first priority are stored in at least one of an input queue and an output queue associated with a first port of the network device (page 17, lines 6-14).

Claim 8 recites: The network device of claim 1, wherein the condition comprises a

congestion condition, the congestion condition occurring when a portion of a predetermined number of data frames having the first priority are stored in an input queue of a device configured to generate frame forwarding information (page 17, lines 14-18).

Claim 9 recites: The network device of claim 1, wherein the transmit device is further configured to transmit an auto-negotiation message to the at least one station, the auto-negotiation message including information relating to the priority indicator (page 15, lines 10-17).

Claim 12 recites: The method of claim 11, wherein the detecting a condition includes detecting a congestion condition relating to a first one of a plurality of types of data frames (page 13, line 15 to page 14, line 17).

Claim 13 recites: The method of claim 12, wherein the plurality of types of data frames includes high priority frames and low priority frames, the first priority corresponding to the first type of data frame (page 13, line 15 to page 14, line 17).

Claim 18 recites: The method of claim 16, wherein the at least one station stops transmitting data frames having the first priority for a period of time after receiving the pause frame and continues transmitting data frames having a priority other than the first priority (page 15, line 21 to page 16, line 4, Fig. 5, 560 and 570).

VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

A. Claims 1-3, 11-13 and 21 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Drummond-Murray (U.S. Patent No. 6,667,985) in view of Crinion et al. (U.S. Patent No. 6,181,699; hereinafter Crinion).

B. Claims 4-8, 10, 14-18, 20, 22 and 23 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Drummond-Murray in view of Crinion and further in view of Lyon (U.S. Patent No. 6,721,273).

C. Claims 9 and 19 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Drummond-Murray in view of Crinion and further in view of admitted prior art.

VII. ARGUMENT

A. Rejection under 35 U.S.C. § 103 based on Drummond-Murray in view of Crinion

1. Claims 1-3 and 11

The initial burden of establishing a *prima facie* basis to deny patentability to a claimed invention always rests upon the Examiner. In re Oetiker, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In rejecting a claim under 35 U.S.C. § 103, the Examiner must provide a factual basis to support the conclusion of obviousness. In re Warner, 379 F.2d 1011, 154 USPQ 173 (CCPA 1967). Based upon the objective evidence of record, the Examiner is required to make the factual inquiries mandated by Graham v. John Deere Co., 86 S.Ct. 684, 383 U.S. 1, 148 USPQ 459 (1966). The Examiner is also required to explain how and why

one having ordinary skill in the art would have been realistically motivated to modify an applied reference and/or combine applied references to arrive at the claimed invention.

Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988).

In establishing the requisite motivation, it has been consistently held that the requisite motivation to support the conclusion of obviousness is not an abstract concept, but must stem from the prior art as a whole to impel one having ordinary skill in the art to modify a reference or to combine references with a reasonable expectation of successfully achieving some particular realistic objective. See, for example, Interconnect Planning Corp. v. Feil, 227 USPQ 543 (Fed. Cir. 1985). Consistent legal precedent admonishes against the indiscriminate combination of prior art references. Carella v. Starlight Archery, 804 F.2d 135, 231 USPQ 644 (Fed. Cir. 1986); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 227 USPQ 657 (Fed. Cir. 1985).

With these principles in mind, claim 1 recites a network device that includes a logic device configured to detect a condition associated with a resource on the network device. Claim 1 also recites that the network device includes a frame generating device configured to generate a pause frame requesting suspension of data traffic in response to the detection of the condition, where the pause frame includes a priority indicator identifying a first priority. Claim 1 further recites a transmit device configured to transmit the pause frame to at least one station, the pause frame requesting the at least one station to suspend transmission of data frames corresponding to the first priority to the network device, where the pause frame does not affect transmission of data frames corresponding to a priority other than the first priority.

The Final Office Action states that Drummond-Murray discloses transmitting a pause frame that requests at least one station to suspend transmission of data frames, where the pause frame does not affect transmission of data frames corresponding to a priority other than the first priority and points to Drummond-Murray at col. 4, lines 1-14 for support (Final Office Action – page 9). The Final Office Action, however, apparently contradicts this statement by admitting that Drummond-Murray does not disclose generating a pause frame that includes a priority indicator (Final Office Action – page 10 at line 2). Therefore, it is unclear how the Examiner can allege that Drummond-Murray discloses transmitting a pause frame that Drummond-Murray admittedly does not generate. In any event, Drummond-Murray does not disclose generating a pause frame that includes a priority indicator identifying a first priority or transmitting the pause frame, where the pause frame does not affect transmission of data frames corresponding to a priority other than the first priority, as required by claim 1 and discussed in detail below.

Drummond-Murray at col. 4, lines 1-14 discloses that specified ports may be excluded from the processing of determining which ports should be subject to traffic reduction in response to the detection of an excessive transmit queue and that specific nodes may function as nodes that are guaranteed as much traffic as they require. This portion of Drummond-Murray further discloses that high priority traffic may continue unimpeded while less important traffic is restricted. This portion of Drummond-Murray involves the reception and forwarding of data packets, presumably received by switch 30 (Drummond-Murray – Fig. 3). This portion of Drummond-Murray, however, has nothing to do with sending a pause frame to

a station, where the pause frame requests the receiving station to suspend transmission of data frames corresponding to the first priority to the network device and the pause frame does not affect transmission of data frames corresponding to a priority other than the first priority, as required by claim 1.

In other words, this portion of Drummond-Murray merely discloses that a control process, presumably located on switch 30, may examine types of packets to determine which port(s) should be subjected to traffic reduction. For example, as disclosed at col. 4, lines 12-14, Drummond-Murray discloses that ports which contain large amounts of 'web-browsing' packets may be penalized more than a port carrying mostly network management traffic. Nothing in this portion of Drummond-Murray discloses or suggests a transmit device configured to transmit a pause frame to at least one station, where the pause frame requests the at least one station to suspend transmission of data frames corresponding to the first priority to the network device and does not affect transmission of data frames corresponding to a priority other than the first priority, as required by claim 1. Drummond-Murray, in contrast to claim 1, merely discloses examining types of packets on the switch so that some ports may be restricted more than other ports.

Further, as discussed above, the Final Office Action admits that Drummond-Murray does not disclose a pause frame including a priority indicator (Final Office Action – page 10 at line 2). Therefore, Appellants assert that Drummond-Murray cannot be fairly construed to disclose or suggest transmitting a pause frame that does not affect transmission of data frames corresponding to a priority other than the first priority, as required by claim 1.

The Final Office Action states that Crinion discloses inserting tag data into a frame which includes priority information for the frame and points to col. 3, lines 13-15 and 62-67 for support (Final Office Action – page 10).

Crinion is directed to an apparatus and method for assigning VLAN tags to frames received at a port (Crinion – Abstract). Crinion at col. 2, line 63 to col. 3, line 15 discloses that a default tag may be assigned to a frame based on the port at which it was received. This portion of Crinion further discloses that frame memory 120 stores at least a part of a frame and search circuit 130 reads the frame information from frame memory 120 and does a lookup to identify a VLAN tag to be inserted into a frame. Tagging circuit 140 then writes the VLAN tag into the frame stored in frame memory 120. Crinion at col. 3, lines 62-67 discloses that the VLAN tag includes a tag protocol identifier (TPID) field and a tag control information (TCI) field. The TCI field includes three bits of priority information. Therefore, these portions of Crinion merely disclose that a VLAN tag inserted into a frame includes priority information. Crinion, however, does not disclose or suggest generating a pause frame that includes a priority indicator, as required by claim 1. Crinion, therefore, cannot further disclose or suggest transmitting the pause frame to at least one station, where the pause frame requests suspension of transmission of data frames corresponding to the first priority and the pause frame does not affect transmission of data frames corresponding to a priority other than the first priority, as required by claim 1.

Therefore, as a factual matter, even if Crinion was combined with Drummond-Murray, the combination would not disclose or suggest each of the features of claim 1.

In response to similar arguments made in the previous response, the Final Office Action states that Drummond-Murray discloses that traffic flow is restricted by generating pause frames and points to col. 4, lines 62-67, col. 5, lines 1-16 and col. 8, lines 16-25 for support (Final Office Action – page 3). The Final Office Action further states that Drummond-Murray clearly discloses that restriction and control of traffic flow can be based upon the priority of the port and points to col. 4, lines 1-14 for support (Final Office Action – page 3). Appellants respectfully disagree.

First, Appellants are not claiming the generation of a conventional pause frame to restrict traffic flow, but are claiming generating a pause frame that includes a priority indicator identifying a first priority, where a receiving station is requested to suspend transmission of data frames to the network device corresponding to the first priority and the pause frame does not affect transmission of data frames corresponding to a priority other than the first priority. As discussed above, Drummond-Murray at col. 4, lines 1-14 has nothing to do with generating pause frames and merely discloses that a control process located on switch 30 may subject certain ports to traffic reduction. Subjecting received data traffic to certain restrictions cannot be fairly construed to suggest transmitting a pause frame that includes a priority indicator, where the station receiving the pause frame is requested to suspend transmission of data frames corresponding to the first priority and the pause frame does not affect transmission of data frames corresponding to a priority other than the first priority, as required by claim 1.

For at least the reasons discussed above, the combination of Drummond-Murray and Crinion does not disclose or suggest each of the features of claim 1.

In addition, even if, for the sake of argument, the combination of Drummond-Murray and Crinion could be reasonably construed to disclose each of the features of claim 1, Appellants assert that it would not have been obvious to combine the disclosure of Crinion with Drummond-Murray.

For example, the Final Office Action states that it would have been obvious to incorporate the priority indication within a frame as taught by Crinion into the invention of Drummond-Murray “in order to provide more intelligent tag data in frames which allows for more intelligent and rank of order in processing frames based upon critical nature of the frame” (Final Office Action – page 10). Appellants respectfully disagree.

First, Drummond-Murray is directed to a system for reducing congestion on a switch (Drummond-Murray – Abstract), while Crinion is directed to a system for assigning VLAN tags to frames (Crinion – Abstract). These references are essentially unrelated, other than the fact that both references involve switching. Appellants assert that it would not have been obvious to combine a feature of Crinion that deals with VLAN tags with Drummond-Murray, which deals with congestion control, without the benefit of Appellants’ disclosure due to the disparate nature of the references. The mere fact that one reference allegedly provides a missing teaching with respect to a claim does not provide objective motivation as to why it would have been obvious to combine the references.

Further, the Examiner’s alleged motivation (i.e., in order to provide more intelligent tag data in frames which allows for more intelligent and rank of order in processing frames based upon critical nature of the frame) is merely a conclusory statement regarding an alleged

benefit of the combination. Such motivation does not satisfy the requirements of 35 U.S.C. § 103.

In response to similar arguments made in the previous response, the Final Office Action states that Drummond-Murray provides the suggestion and motivation to combine the references and points to col. 4, lines 1-14 for support (Final Office Action – page 4). Appellants respectfully disagree.

As discussed above, Drummond-Murray at col. 4, lines 1-14 merely discloses that some ports on a switch can be excluded from traffic reduction. Appellants maintain that such a disclosure provides no objective motivation for combining Drummond-Murray, which is directed to a system for reducing congestion on a switch (Drummond-Murray – Abstract), with Crinion, which is directed to a system for assigning VLAN tags to frames (Crinion – Abstract).

For at least these reasons, Appellants respectfully submit that the imposed rejection of claim 1 under 35 U.S.C. § 103 based on Drummond-Murray and Crinion is improper. Accordingly, reversal of the rejection of claims 1-3 and 11 is respectfully requested.

Appellants also respectfully request reversal of the rejection of claims 4 and 10, which depend on claim 1, and claims 15 and 20, which depend on claim 11, for at least the reasons claims 1 and 11 are allowable over the cited art.

2. Claim 12

Claim 12 is dependent on claim 11 and recites that the detecting a condition includes

detecting a condition relating to a first one of a plurality of types of data frames. With respect to claim 11, the Final Office Action states that the features of claim 12 are rejected under the same rationale as claims 1 and 2 (Final Office Action – page 11).

Appellants note that claims 1 and 2 do not recite a feature similar to claim 12. Therefore, a prima facie case with respect to claim 12 has not been established. The Final Office Action does state that Drummond-Murray discloses detecting a condition associated with a resource on the network device and points to col. 6, lines 19-34 for support (Final Office Action – page 9). Drummond-Murray at col. 6, lines 19-34 discloses that when an output buffer achieves a specified degree of fullness, the switching engine is signaled so that it prevents the forwarding of packets from any of the receive queues to the respective output buffer. This portion of Drummond-Murray, however, does not disclose or suggest detecting a condition relating to a first one of plurality of types of data frames, as required by claim 12.

Therefore, Appellants respectfully submit that the imposed rejection of claim 12 under 35 U.S.C. § 103 is improper. Accordingly, reversal of the rejection of claim 12 is respectfully requested.

3. Claim 13

Claim 13 is dependent on claim 12 and recites that the plurality of types of data frames includes high priority frames and low priority frames, the first priority corresponding to the first type of data frame. The Final Office Action states that Crinion discloses this feature and points to col. 7, line 67 to col. 8, line 10 for support (Final Office Action – page 11).

Appellants respectfully disagree.

Crinion at col. 7, line 67 to col. 8, line 10 discloses that detector/insertter 335 processes the priority for VLANs. In a first mode, priority bits in a VLAN are compared against a priority register to determine if the frame should be marked as a high priority frame. In a second mode, VLAN priority bits are compared against the priority register to determine if the values match. This portion of Crinion, however, does not disclose or suggest that the plurality of types of data frames include high and low priority frames and the first priority (which is included in the pause frame) corresponds to the first type of data frame (which is associated with congestion condition), as required by claim 13. In contrast, this portion of Crinion merely discloses processing the priority information associated with VLANs.

Therefore, Appellants respectfully submit that the combination of Drummond-Murray and Crinion does not disclose or suggest each of the features of claim 13 and the imposed rejection of claim 13 under 35 U.S.C. § 103 is improper. Accordingly, reversal of the rejection of claim 13 is respectfully requested.

4. Claim 21

Claim 21 recites a computer-readable medium having a data structure comprising a priority field including information representing a priority level associated with data frames for which data transmissions are to be suspended. Claim 21 also recites that the data structure comprises a pause time field including information representing a length of time for at least one receiving station identified by the destination address field to suspend data transmissions

relating to the priority level in the priority field.

The Final Office Action admits that Drummond-Murray does not disclose a data structure that includes a priority indicator, but states that Drummond-Murray disclose a pause time field representing a length of time for at last one receiving station identified by the destination address field to suspend data transmissions relating to the priority level in the priority field and points to col. 4, line 62 to col. 5, line 3 for support (Final Office Action – pages 11-12). Appellants respectfully disagree.

First, since Drummond-Murray, as admitted in the Final Office Action, does not disclose the claimed priority field, Drummond-Murray cannot disclose the claimed pause time field which involves the claimed priority field (i.e., represents length of time for a receiving station to suspend data transmissions relating to the priority level in the priority field).

Further, Drummond-Murray at col. 4, line 62 to col. 5, line 3 merely discloses a conventional MAC pause frame.

Crinion also does not disclose or suggest a data structure that includes a priority field that represents a priority level associated with data frames for which data transmissions are to be suspended, as required by claim 21, or a pause time field that includes information representing a length of time for a station to suspend data transmissions relating to the priority level in the priority field, as further required by claim 21.

Therefore, the combination of Drummond-Murray and Crinion does not disclose or suggest a data structure that includes the priority field or pause time field recited in claim 21.

In addition, assuming for the sake of argument, that the combination of Drummond-

Murray and Crinion could be fairly construed to disclose or suggest each of the features of claim 21, Appellants assert that it would not have been obvious to combine Drummond-Murray and Crinion for reasons similar to those given above with respect to claim 1.

Therefore, Appellants respectfully submit that the rejection of claim 21 under 35 U.S.C. § 103 is improper. Accordingly, reversal of the rejection of claim 21 is respectfully requested.

B. Rejection under 35 U.S.C. § 103(a) based on Drummond-Murray in view of Crinion and further in view of Lyon

1. Claims 5 and 14

Claim 5 is dependent on claims 1 and 4 and recites that the logic device is further configured to detect the condition when frame forwarding information associated with a predetermined number of data frames having the first priority are stored in a first one of the plurality of queues. The Final Office states that Lyon discloses this feature and points to Figs. 3 and 6, col. 6, lines 10-29 and col. 7, lines 28-37 for support (Final Office Action – page 13). The Final Office Action also apparently indicates that Drummond-Murray discloses this feature and points to col. 5, lines 51 and 54, col. 6, lines 19-40 and col. 7, lines 16-26 for support (Final Office Action – page 14). Appellants respectfully disagree.

Lyon at col. 6, lines 10-29 discloses that demultiplexer 28 receives incoming cells and divides cells into flows based on emission priority levels and sends the cells to output queues OP0 to OP3 (Fig. 3). Lyon at col. 7, lines 28-37 discloses that cells of emission priorities p0

to p3 are stored in a set of input queues P0 to P3 (Fig. 6). These portions of Lyon do not disclose or suggest detecting a condition when frame forwarding information associated with a predetermined number of data frames having the first priority are stored in a first one of the plurality of queues, as recited in claim 5. In contrast, these portions of Lyon merely disclose storing cells in various input and output queues based on priority levels.

Drummond-Murray at col. 5, lines 51 and 54, as discussed above, discloses that switch 30 includes receive queues and transmit queues. Drummond-Murray at col. 6, lines 19-40 discloses defining a fullness threshold corresponding to some predetermined physical capacity of an output buffer. Drummond-Murray at col. 7, lines 16-26 discloses identifying a port which is most likely causing congestion. None of these portions of Drummond-Murray, nor any other portions, discloses or suggests detecting a condition when frame forwarding information associated with a predetermined number of data frames having the first priority are stored in a first one of the plurality of output queues, as required by claim 5.

Therefore, as a factual matter, the combination of Drummond-Murray, Crinion and Lyon does not disclose or suggest each of the features of claim 5.

In addition, even if, for the sake of argument, the combination of Drummond-Murray, Crinion and Lyon could be construed to disclose each of the features of claim 5, Appellants assert that it would not have been obvious to combine Drummond-Murray, Crinion and Lyon.

For example, the Final Office Action states that it would have been obvious to incorporate the features of Crinion with Drummond-Murray and Crinion “to improve upon the flow of traffic in and out of a switch and to provide more reliability such that higher priority

traffic will be given a better chance of making it through congestion over low priority traffic” (Final Office Action – page 13). Appellants respectfully disagree.

First, Appellants note that no portion of any of the three references is pointed to as providing objective motivation for combining Lyon with Drummond-Murray and Crinion. In addition, the motivation provided for combining Lyon with Drummond-Murray and Crinion is merely a conclusory statement regarding an alleged benefit of the combination. Such motivation does not satisfy the requirements of 35 U.S.C. § 103.

Therefore, Appellants respectfully submit that the imposed rejection of claim 5 under 35 U.S.C. § 103 is improper. Accordingly, reversal of the rejection of claims 5 and 14 is respectfully requested.

2. Claims 6 and 16

Claim 6 is dependent on claim 1 and recites that the condition relates to a congestion condition associated with data frames having the first priority. The Final Office Action apparently indicates that the combination of Drummond Murray and Lyon disclose this feature and points to col. 5, lines 51 and 54, col. 6, lines 19-40 and col. 7, lines 16-26 of Drummond-Murray and Figs. 3 and 6, col. 6, lines 10-29 and col. 7, lines 28-37 of Lyon for support (Final Office Action – page 14). Appellants respectfully disagree.

First, as discussed above with respect to claim 5, none of the portions of Drummond-Murray reference above discloses or suggests detecting a condition associated with data frames having any particular priority. Further, similar to the discussion above with respect to claim

5, the portions of Lyon referenced above merely disclose storing cells in various input and output queues based on priority levels. Crinion also does not disclose or suggest the feature recited in claim 6.

Therefore, as a factual matter, the combination of Drummond-Murray, Crinion and Lyon does not disclose or suggest detecting a congestion condition associated with data frames having a first priority, where the priority indicator in the pause frame identifies the first priority, as required by claim 6.

In addition, even if, for the sake of argument, the combination of Drummond-Murray, Crinion and Lyon could be reasonably construed to disclose each of the features of claim 6, Appellants assert that it would not have been obvious to combine the disclosure of Lyon with the combination of Drummond-Murray and Crinion for the reasons give above with respect to claim 5.

Therefore, Appellants respectfully submit that the imposed rejection of claim 6 under 35 U.S.C. § 103 is improper. Accordingly, reversal of the rejection of claims 6 and 16 is respectfully requested.

3. Claim 7

Claim 7 recites that the condition relates to a congestion condition, the congestion condition occurring when a predetermined number of data frames having the first priority are stored in at least one of an input queue and an output queue associated with a first port of the network device. The Final Office Action states that Lyon discloses this feature and points to

Figs. 3 and 6, col. 6, lines 10-29 and col. 7, lines 28-37 for support (Final Office Action – page 15). Appellants respectfully disagree.

Similar to the discussion above with respect to claim 5, Lyon at col. 6, lines 10-29 discloses that demultiplexer 28 receives incoming cells and divides cells into flows based on emission priority levels and sends the cells to output queues OP0 to OP3 (Fig. 3). Lyon at col. 7, lines 28-37 discloses that cells of emission priorities p0 to p3 are stored in a set of input queues P0 to P3 (Fig. 6). These portions of Lyon do not disclose or suggest a congestion condition that occurs when a predetermined number of data frames having the first priority are stored in at least one of an input queue and an output queue associated with a first port on the network device. In contrast, these portions of Lyon merely disclose storing cells in various input and output queues based on priority levels.

In addition, neither Drummond-Murray nor Crinion discloses or suggests the feature recited in claim 7. Therefore, the combination of Drummond-Murray, Crinion and Lyon does not disclose or suggest each of the features of claim 7.

Further, even if, for the sake of argument, the combination of Drummond-Murray, Crinion and Lyon could be reasonably construed to disclose each of the features of claim 7, Appellants assert that it would not have been obvious to combine the disclosure of Lyon with the combination of Drummond-Murray and Crinion for the reasons give above with respect to claim 5.

Therefore, Appellants respectfully submit that the imposed rejection of claim 7 under 35 U.S.C. § 103 is improper. Accordingly, reversal of the rejection of claim 7 is respectfully

requested.

4. Claim 8

Claim 8 recites that the condition comprises a congestion condition, the congestion condition occurring when a portion of a predetermined number of data frames having the first priority are stored in an input queue of a device configured to generate frame forwarding information. The Final Office Action states that Lyon discloses this feature and points to Figs. 3 and 6, col. 6, lines 10-29 and col. 7, lines 28-37 for support (Final Office Action – page 15). Appellants respectfully disagree.

Similar to the discussion above with respect to claims 5 and 7, the portions of Lyon referenced above do not disclose or suggest a congestion condition that occurs when a portion of a predetermined number of data frames having the first priority are stored in an input queue of a device configured to generate frame forwarding information. In contrast, these portions of Lyon merely disclose storing cells in various input and output queues based on priority levels.

In addition, neither Drummond-Murray nor Crinion discloses or suggests the feature recited in claim 8. Therefore, the combination of Drummond-Murray, Crinion and Lyon does not disclose or suggest each of the features of claim 8.

Further, even if, for the sake of argument, the combination of Drummond-Murray, Crinion and Lyon could be reasonably construed to disclose each of the features of claim 8, Appellants assert that it would not have been obvious to combine the disclosure of Lyon with

the combination of Drummond-Murray and Crinion for the reasons give above with respect to claim 5.

Therefore, Appellants respectfully submit that the imposed rejection of claim 8 under 35 U.S.C. § 103 is improper. Accordingly, reversal of the rejection of claim 8 is respectfully requested.

5. Claim 18

Claim 18 is dependent on claim 16 and recites that the at least one station stops transmitting data frames having the first priority for a period of time after receiving the pause frame and continues transmitting data frames having a priority other than the first priority. The Final Office Action states that Drummond-Murray discloses this feature and points to col. 4, lines 1-14 for support (Final Office Action – page 17). Appellants respectfully disagree.

As discussed above, Drummond-Murray at col. 4, lines 1-14 merely discloses that some ports on a switch can be excluded from traffic reduction to allow specific ports to function as nodes that are guaranteed as much traffic as they require. This portion of Drummond-Murray, however, does not disclose or suggest a station that receives a pause frame with a priority indicator identifying a first priority and stops transmitting data frames having the first priority for a period of time after receiving the pause frame and continues transmitting data frames having a priority other than the first priority, as required by claim 18.

In addition, neither Crinion nor Lyon discloses or suggests the feature recited in claim 8. Therefore, the combination of Drummond-Murray, Crinion and Lyon does not disclose or

suggest each of the features of claim 18.

Further, even if, for the sake of argument, the combination of Drummond-Murray, Crinion and Lyon could be reasonably construed to disclose each of the features of claim 18, Appellants assert that it would not have been obvious to combine the disclosure of Lyon with the combination of Drummond-Murray and Crinion for the reasons give above with respect to claim 5.

Therefore, Appellants respectfully submit that the imposed rejection of claim 18 under 35 U.S.C. § 103 is improper. Accordingly, reversal of the rejection of claim 18 is respectfully requested.

6. Claim 22

Claim 22 recites a data communication system that includes a first device and a second device. The first device is configured to detect a congestion condition when at least a predetermined number of data frames of a first priority are being processed by the first device.

The Final Office Action states that Drummond-Murray discloses detecting a congestion condition when at least a predetermined number of frames are being processed by the first device and points to col. 5, lines 51 and 54, col. 6, lines 19-40 and col. 7, lines 16-26 for support (Final Office Action – page 18).

Drummond-Murray at col. 5, lines 51 and 54 discloses that switch 30 includes receive queues and transmit queues. Drummond-Murray at col. 6, lines 19-40 discloses defining a fullness threshold corresponding to some predetermined physical capacity of an output buffer.

Drummond-Murray at col. 7, lines 16-26 discloses identifying a port which is most likely causing congestion. None of these portions of Drummond-Murray, nor any other portions, discloses or suggests detecting a congestion condition when at least a predetermined number of data frames of a first priority are being processed by the first device, as required by claim 22.

Claim 22 also recites that the first device is configured to generate a pause frame requesting suspension of data transmissions in response to the congestion condition, where the pause frame includes a priority indicator corresponding to the first priority. Claim 22 further recites that the second device is configured to receive the pause frame, suspend transmission of data frames relating to the first priority, and continue transmission of data frames relating to a second priority.

Similar to the discussion above with respect to claim 1, neither Drummond-Murray nor Crinion discloses or suggests including a priority indicator in a pause frame, much less that the priority indicator corresponds to the claimed first priority. In addition, neither Drummond-Murray nor Crinion discloses or suggests a second device that is configured to receive the pause frame and suspend transmission of data frames relating to the first priority and continue transmission of data frames relating to a second priority, as recited in claim 22.

Appellants note that Lyon has been used in the rejection of claim 22 as disclosing determining a priority associated with received data frames (Final Office Action – page 19). Lyon, however, does not remedy the deficiencies in the combination of Drummond-Murray and Crinion discussed above.

Therefore, as a factual matter, the combination of Drummond-Murray, Crinion and Lyon does not disclose or suggest each of the features of claim 22.

In addition, even if, for the sake of argument, the combination of Drummond-Murray, Crinion and Lyon could be construed to disclose each of the features of claim 22, Appellants assert that it would not have been obvious to combine Drummond-Murray, Crinion and Lyon.

For example, the Final Office Action states that it would have been obvious to incorporate the features of Crinion with Drummond-Murray for the same reasons given with respect to claim 1 (Final Office Action – pages 19-20). For the reasons discussed above with respect to claim 1, Appellants respectfully submit that the alleged motivation for combining Crinion with Drummond-Murray does not satisfy the requirements of 35 U.S.C. § 103.

In addition, the Final Office Action states that it would have been obvious to combine Lyon with the combination of Drummond-Murray and Crinion “to improve upon the flow of traffic in and out of a switch and to provide more reliability such that higher priority traffic will be given a better chance of making it through congestion over low priority traffic” (Final Office Action – page 20). Appellants respectfully disagree.

First, Appellants note that no portion of any of the three references is pointed to as providing objective motivation for combining Lyon with Drummond-Murray and Crinion. In addition, the motivation provided for combining Lyon with Drummond-Murray and Crinion is merely a conclusory statement regarding an alleged benefit of the combination. Such motivation does not satisfy the requirements of 35 U.S.C. § 103.

Therefore, Appellants respectfully submit that the imposed rejection of claim 22 under

35 U.S.C. § 103 is improper. Accordingly, reversal of the rejection of claim 22 is respectfully requested.

7. Claim 23

Claim 23 recites a first network device in a network. The first network device includes data frame processing logic configured to: identify a received data frame as a pause frame, the pause frame including a priority indicator, map the priority indicator to a first priority, suspend transmission of data frames corresponding to the first priority, and continue transmission of data frames corresponding to priorities other than the first priority.

The Final Office Action admits that Drummond-Murray does not disclose a pause frame with a priority indicator and mapping the priority indicator to a first priority (Final Office Action – page 21). The Final Office Action, however, states that Crinion discloses inserting tag data into a frame which includes priority information and points to col. 3, lines 13-15 and 62-67 for support (Final Office Action – page 21).

Crinion at col. 3, lines 13-15, as discussed above, discloses that a VLAN tag may include priority information. Crinion at col. 3, lines 62-67, as discussed above, discloses that the VLAN tag includes a tag protocol identifier field and a tag control information field. These portions of Crinion, or any other portions, do not disclose or suggest receiving a pause frame including a priority indicator, as required by claim 23.

In addition, neither Drummond-Murray nor Crinion, taken singly or in combination, discloses mapping the priority indicator to a first priority, suspending transmission of data

frames corresponding to the first priority, and continuing transmission of data frames corresponding to priorities other than the first priority, as required by claim 23.

Appellants note that Lyon was used in the rejection to disclose mapping received frames to a priority based on an identification in the frame (Final Office Action – page 21). Lyon, however, does not disclose or suggest suspending transmission of data frames corresponding to the first priority, and continuing transmission of data frames corresponding to priorities other than the first priority, as required by claim 23.

Therefore, as a factual matter, the combination of Drummond-Murray, Crinion and Lyon does not disclose or suggest each of the features of claim 23.

In addition, even if, for the sake of argument, the combination of Drummond-Murray, Crinion and Lyon could be construed to disclose each of the features of claim 23, Appellants assert that it would not have been obvious to combine Drummond-Murray, Crinion and Lyon for the reasons given above with respect to claim 22.

Therefore, Appellants respectfully submit that the imposed rejection of claim 23 under 35 U.S.C. § 103 is improper. Accordingly, reversal of the rejection of claim 23 is respectfully requested.

**C. Rejection under 35 U.S.C. § 103(a) based on Drummond-Murray in view of
Crinion and further in view of admitted prior art**

1. Claims 9 and 19

Claim 9 is dependent on claim 1 and recites that the transmit device is further configured to transmit an auto-negotiation message to the at least one station, the auto-negotiation message including information relating to the priority indicator. The Final Office Action admits that neither Drummond-Murray nor Crinion discloses this feature (Final Office Action – page 22). The Final Office Action, however, states that the admitted prior art teaches that the auto-negotiation feature is defined in the IEEE 802.3 standard and that it would have been obvious to use the auto-negotiation feature of the IEEE 802.3 standard in the combination of Drummond-Murray and Crinion “in order to provide a useful and convenient way to communicate reliably with other network devices using a standardized feature” (Final Office Action – page 22). Appellants respectfully disagree.

First, as discussed above with respect to claim 1, the combination of Drummond-Murray and Crinion does not disclose transmitting a pause frame with a priority indicator. The combination, therefore, cannot be construed to disclose or suggest transmitting an auto-negotiation message that includes information relating to the priority indicator, as required by claim 9. The admitted prior art also does not remedy the deficiencies in the combination of Drummond-Murray and Crinion. Therefore, the combination of Drummond-Murray, Crinion and the admitted prior art does not disclose or suggest each of the features of claim 9.

Further, even if, for the sake of argument, the combination of Drummond-Murray and Crinion could be construed to disclose transmitting a pause frame with a priority indicator, the cited references provide no objective motivation as to why it would have been obvious to use an auto-negotiation message to transmit information relating to the priority indicator, as required by claim 9.

For example, the mere fact that an auto-negotiation feature is defined in IEEE 802.3 does not provide objection motivation as to why it would have been obvious to use such a message in the combination of Drummond-Murray and Crinion. In this respect, Appellants rely upon In re Deuel, 51 F.3d 1552, 34 USPQ2d 1210 (Fed. Cir. 1995), wherein it was held that generalizations do not establish the realistic motivation to modify a specific reference (or combination of references) in a specific manner to arrive at a specifically claimed invention.

Nothing in either Drummond-Murray or Crinion suggests using an auto-negotiation message to transmit information to a station, where the information relates to a priority indicator included in a pause frame. Appellants, therefore, assert that there would be no objective motivation to use such a message absent impermissible hindsight.

In response to similar arguments made in the previous response, the Final Office Action states that auto-negotiation is widely known and used and that it would have been obvious to use such a feature to negotiate between devices “because it would provide a standardized method for negotiating connection capabilities with devices thereby increasing performance times and capabilities of the system” (Final Office Action – pages 7-8). Appellants respectfully disagree.

There are many ways in which two devices in a network may communicate. The Examiner has not pointed to any portion of either reference as providing objective motivation for using an auto-negotiation message in the combination of Drummond-Murray and Crinion. Appellants further maintain that it would not have been obvious to use such a message to transmit information relating to the priority indicator included in a pause frame without the benefit of Appellants' disclosure.

Therefore, Appellants respectfully submit that the imposed rejection of claim 9 under 35 U.S.C. § 103 is improper. Accordingly, reversal of the rejection of claims 9 and 19 is respectfully requested.


VIII. CONCLUSION

In view of the foregoing arguments, Appellants respectfully solicit the Honorable Board to reverse the Examiner's rejections of claims 1-16 and 18-23.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 50-1070 and please credit any excess fees to such deposit account.

Respectfully submitted,

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IX. APPENDIX

1. A network device configured to control communication of data frames between stations, comprising:

a logic device configured to detect a condition associated with a resource on the network device;

a frame generating device configured to generate a pause frame requesting suspension of data traffic in response to the detection of the condition, the pause frame including a priority indicator identifying a first priority; and

a transmit device configured to transmit the pause frame to at least one station, the pause frame requesting the at least one station to suspend transmission of data frames corresponding to the first priority to the network device, wherein the pause frame does not affect transmission of data frames corresponding to a priority other than the first priority.

2. The network device of claim 1, wherein the priority indicator includes information representing one of a plurality of types of data frames.

3. The network device of claim 2, wherein the plurality of types of data frames includes high priority frames and low priority frames.

4. The network device of claim 1, further comprising:

a plurality of queues for storing frame forwarding information, the plurality of queues having different levels of priority; and

a priority detection device configured to:

identify a priority associated with a data frame received by the network device, and

store frame forwarding information associated with the data frame in one of a plurality of queues based on the identified priority.

5. The network device of claim 4, the logic device being further configured to detect the condition when frame forwarding information associated with a predetermined number of data frames having the first priority are stored in a first one of the plurality of queues.

6. The network device of claim 1, wherein the condition relates to a congestion condition associated with data frames having the first priority.

7. The network device of claim 1, wherein the condition relates to a congestion condition, the congestion condition occurring when a predetermined number of data frames having the first priority are stored in at least one of an input queue and an output queue associated with a first port of the network device.

8. The network device of claim 1, wherein the condition comprises a congestion condition, the congestion condition occurring when a portion of a predetermined number of

data frames having the first priority are stored in an input queue of a device configured to generate frame forwarding information.

9. The network device of claim 1, wherein the transmit device is further configured to transmit an auto-negotiation message to the at least one station, the auto-negotiation message including information relating to the priority indicator.

10. The network device of claim 1, further comprising:
a receive device configured to receive data frames from the stations, the data frames having a priority indicator; and
priority mapping logic configured to convert the priority indicator received with the respective data frames to one of a number of priority levels supported by the network device.

11. In a network device that controls communication of data frames between stations, a method comprising:
detecting a condition on the network device;
generating a pause frame requesting suspension of data traffic of a first priority for a period of time, the pause frame not affecting data traffic of a priority other than the first priority in response to detecting the condition, the pause frame including a priority indicator identifying the first priority; and
transmitting the pause frame to at least one station.

12. The method of claim 11, wherein the detecting a condition includes detecting a congestion condition relating to a first one of a plurality of types of data frames.

13. The method of claim 12, wherein the plurality of types of data frames includes high priority frames and low priority frames, the first priority corresponding to the first type of data frame.

14. The method of claim 11, wherein the detecting a condition includes detecting when frame forwarding information for a predetermined number of frames are stored in a queue on the network device, the method further comprising:

identifying a priority associated with the queue, the priority corresponding to the first priority.

15. The method of claim 11, wherein the detecting a condition includes detecting a congestion condition associated with at least one of an input queue and an output queue on the network device.

16. The method of claim 11, wherein the detecting a condition includes detecting congestion condition associated with data frames having the first priority.

18. The method of claim 16, wherein the at least one station stops transmitting data frames having the first priority for a period of time after receiving the pause frame and continues transmitting data frames having a priority other than the first priority.

19. The method of claim 11, further comprising:
transmitting an auto-negotiation message to the at least one station prior to transmitting the pause frame, the auto-negotiation message including information relating to the priority indicator.

20. The method of claim 11, further comprising:
receiving a data frame including a priority indicator; and
mapping the priority indicator received with the data frame to one of a number of priority levels supported by the network device.

21. A computer-readable medium having a data structure comprising:
a source address field;
a destination address field;
a priority field including information representing a priority level associated with data frames for which data transmissions are to be suspended; and
a pause time field including information representing a length of time for at least one receiving station identified by the destination address field to suspend data

transmissions relating to the priority level in the priority field.

22. A data communication system, comprising:

a first device configured to:

receive data frames from at least one station,

determine a priority associated with the received data frames,

detect a congestion condition when at least a predetermined number of
data frames of a first priority are being processed by the first device,

generate a pause frame requesting suspension of data transmissions in
response to the congestion condition, the pause frame including a priority indicator
corresponding to the first priority, and

transmit the pause frame to at least one station; and

a second device configured to:

receive the pause frame,

suspend transmission of data frames relating to the first priority, and

continue transmission of data frames relating to a second priority.

23. In a network including a number of network stations and at least one network
device configured to control communication of data frames between stations, a first network
device, comprising:

a receive device configured to receive data frames from at least one of the network stations and other network devices; and

data frame processing logic configured to:

identify a received data frame as a pause frame, the pause frame including a priority indicator,

map the priority indicator to a first priority,

suspend transmission of data frames corresponding to the first priority, and

continue transmission of data frames corresponding to priorities other than the first priority.